

WHAT IS CLAIMED IS:

1. A computer-implemented method of dynamically modeling and displaying a passage of information between at least two spatially distributed objects in a body.
- 5 2. The method of Claim 1, wherein at least one spatially distributed object represents at least one of a group selected from:
 - a tissue of the body; and
 - an organ of the body.
- 10 3. The method of Claim 1, wherein at least one spatially distributed object represents a device used for medical intervention.
4. The method of Claim 1, wherein at least one spatially distributed object represents a material introduced into the body by accident.
5. The method of Claim 1, wherein at least one spatially distributed object represents material introduced into the body by an aggressor.
- 15 6. The method of Claim 1, wherein at least one spatially distributed object represents material introduced into the body for cosmetic purposes.
7. The method of Claim 1, wherein at least one spatially distributed object is represented as having a spatial form and points of contact with other objects.
8. The method of Claim 7, wherein at least one spatially distributed object
- 20 has a geometrical description of a three-dimensional form.
9. The method of Claim 8, wherein the three-dimensional form comprises a polygonal surface representing a spatial boundary.
10. The method of Claim 8, wherein the three-dimensional form comprises a specification of points in a grid laid out in three-dimensional space.

11. The method of Claim 7, wherein at least one spatially distributed object has a geometrical description of a two-dimensional surface.

12. The method of Claim 7, wherein at least one spatially distributed object has a geometrical description of a one-dimensional curve.

5 13. The method of Claim 1, wherein at least one spatially distributed object contains a numerical description of the condition of the at least one spatially distributed object.

14. The method of Claim 13, wherein the numerical description comprises lesions of medically recognized types in a tissue represented by the at least one
10 spatially distributed object.

15. The method of Claim 13, wherein the numerical description may refer to the states at particular spatial locations within the at least one spatially distributed object.

16. The method of Claim 1, wherein a signal passed between a first spatially
15 distributed object and a second spatially distributed object depends upon the internal state of the first spatially distributed object and the second spatially distributed object, and upon an algorithmic specification characterizing the transfer capacity between the first spatially distributed object and the second spatially distributed object.

20 17. The method of Claim 16, wherein the algorithmic specification is provided with a digital implementation of the method.

18. The method of Claim 16, wherein the algorithmic specification is obtained by a user and connected to a digital implementation of the method by programming means.

19. The method of Claim 1, wherein at least one spatially distributed object and at least one algorithm governing an internal state of the at least one spatially distributed object are provided with a digital implementation of the method.

20. The method of Claim 1, wherein a subset of the at least one spatially distributed object, at least one algorithm governing the evolution of an internal state of the at least one spatially distributed object, and at least one passed signal are constructed by the user and connected to a digital implementation of the method by programming means provided with the digital implementation of the method.

21. The method of Claim 1, wherein at least one spatially distributed object is grouped as a different spatially distributed object, and at least one algorithm associated with the different spatially distributed object is run on data associated with the different spatially distributed object to approximate the effect of the at least one algorithm on the data associated with the at least one spatially distributed objects.

22. The method of Claim 1, wherein a geometrical description is modified by a global transformation specifying a correspondence between a reference coordinate space of the method and a coordinate space appropriate to a particular subject.

23. The method of Claim 1, wherein a geometrical description may be modified individually to better match a corresponding entity in a particular subject to create a new hypothetical example.

24. The method of Claim 1, further comprising:

specifying the condition of at least one spatially distributed object;

running at least one associated algorithm; and

reporting the results.

25. The method of Claim 1, further comprising:

specifying an initial condition of at least one spatially distributed object;

5 running at least one associated algorithm while continuing to intervene in the

state of the at least one spatially distributed object in real-time; and

observing results.

26. The method of Claim 1, further comprising:

running at least one associated algorithm on a system that resides on a central

10 server; and

having a user issue modification and simulation commands over the Internet

which are executed on the central server.

27. The method of Claim 1, further comprising:

having a user obtain standard system data; and

15 having the user issue modification and simulation commands that are

executed on a computer.

28. The method of Claim 27, further comprising displaying a

three-dimensional graphical image representing a spatial arrangement of at least

one spatially distributed object.

20 29. The method of Claim 28, where the three-dimensional graphical image is

color-coded.

30. The method of Claim 27, further comprising displaying results as

numbers.

31. The method of Claim 24, where a second program issues modification

and simulation commands and receives data describing the results of system computations as input for further computations by said second program.

32. The method of Claim 1, wherein the information comprises at least one of a group consisting of:

5 material; and
 signals.